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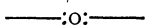
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It is interesting to note in this connection that one of the little ivory images brought home by our party from Point Barrow represents a bear with *ten* legs, said to have been seen once at Point Barrow, and evidently a blood relation of the many-legged *kiliv-fak* of the Greenland stories.

Another fabulous beast was the *ugruna*. "There are none now on the land. It has gone away, only the bones [remain]." This name appears to be applied to an extinct species of ox or buffalo, whose bones they sometimes see in the interior, probably along the banks of the rivers. We procured several teeth of the *ugruna* which had been worn as amulets. As in Labrador this name is also applied satirically to the smallest mammal known to the Eskimos, a little shrewmouse.

As elsewhere on the American continent, the Red Indian, who in Greenland, like the wolf, has become a fabulous being, dwelling in the mysterious inland country, is called by the contemptuous name, "son of a *nit*"—Itkûdling, the Ingalik or "Ingaleet" of Norton sound, which is plainly the same word as the *erkilek* of the Greenland traditions.

Outside of the strict field of legendary history or tradition, the religious ideas and superstitious observances of these people, as far as we had the good fortune to observe them, show a great resemblance to those of the Greenlanders before their conversion to Christianity. So strong is the resemblance in this and in other respects that I feel confident that an intelligent observer who should devote himself to the collection of the traditions of the Eskimos of Point Barrow, as Dr. Rink has so ably done for the Greenlanders, would find here the greater part of the older traditions of the Greenlanders in a recognizable shape.



## HISTORY OF CELERY.

BY E. LEWIS STURTEVANT, M.D.

IF we consider cultivation as embracing only the removal of a plant to fertile soil and its protection from injury from crowding, the only marked effect of the continuance upon a plant through itself and its offspring seems to be embraced in the one word expansion, *i. e.*, increase of size. If we enlarge the meaning of cultivation so as to embrace selection and the cross-fertilization of the flowers which yield seed for future use, the subject

becomes more complicated, and we find it difficult in all cases to connect the sequence of cause and effect. One fact, however, through careful observations, seems undoubtedly true, that by selection alone, without the assistance of the break caused by a cross-fertilization, changes in our plant are extremely slow, and many generations are required to obtain and fix any change other than increase which is sufficient to be noted by the casual eye. In support of this view we can direct attention to the little change that has been produced by centuries of culture in those plants which represent but improved forms of a wild species, such as the parsnip, scorzonera, salsify, etc., among roots; and we may also call attention to the stability of type-form during centuries of culture in the eggplant, pepper, and I may even add the pumpkin. Perhaps one of the most interesting instances of increase of size without change of type can be seen in the watermelon. The old herbalists figure this fruit of small size, but as is very likely, only small varieties were commonly grown in Europe. John Bauhin, whose history of plants was published in 1650, many years after it was written (he died in 1613), states the watermelon to be so large that one could scarcely embrace it with the two hands, "*quos fere ambabus manibus ambias.*" Margravis, whose history of natural productions of Brazil was published in 1648, describes the watermelon as being as large as one's head, "*magnitudine capitis humani.*"<sup>1</sup> That our present types of fruit were then known is evidenced in many ways, but can be given succinctly by Caspar Bauhin's statement in his *Pinax*, edition of 1623, that some have a green skin, others a skin spotted with dingy white; the flesh of some red, of others white; the seeds black, red and tawny, in varieties. Ray describes the fruit as round, or globose or even elliptical. In modern times we have fruit so large that my arms cannot embrace the oval, and a weight of ninety-six pounds has been claimed, probably with justice.

In seeking for a good illustration of the stability of type joined with a change produced by cultivation and selection, I have taken the celery, as this vegetable seems to be of modern

<sup>1</sup> Cardanus, however, in his *de rerum varietate*, 1556, apparently refers to a watermelon, "*Magnitudo quandoque tanta, ut homo expansis brachiis vix una amplecti queat;*" but then Cardanus was dealing with wonderful things! He calls it "*Anguria, qua melopeponem ob it Galenus vocat, quod non distincta sit canaliibus ut pepon sed rotunda ut pomum.*"

origin, and the variations from the wild plant have been apparently deemed great, although really but slight, except in expansion produced by freedom of growth and changes which have slowly accumulated through selection.

The celery has originated from the *Apium graveolens* L., a plant of marshy places whose habitat extends from Sweden southward to Algeria, Egypt, Abyssinia, and in Asia even to the Caucasus, Beloochistan and the mountains of British India,<sup>1</sup> and has been found in Fuegia,<sup>2</sup> in California<sup>3</sup> and in New Zealand.<sup>4</sup> It is supposed to be the *selinon* of the Odyssey, the *selinon heleion* of Hippocrates, the *Eleioselinon* of Theophrastus and Dioscorides and the *Helioselinon* of Pliny and Palladius. It does not seem to have been cultivated,<sup>5</sup> although by some commentators the word interpreted as smallage has a wild and cultivated sort. Nor do I find any clear statement that this smallage was used as food, for *sativus* means simply planted as distinguished from growing wild, and we may suppose that this *Apium*, if smallage was meant, was planted for medicinal use. Targioni-Tozzetti<sup>6</sup> says this *Apium* was considered by the ancients rather as a funereal or ill-omened plant than as an article of food, and that by early modern writers it is mentioned only as a medicinal plant. This seems true, for in the books in my library I find that Fuchsius, 1542, does not speak of its being cultivated, and implies a medicinal use alone, as did Walafridus Strabo in the ninth century; Tragus, 1552, likewise; Pinaeus, 1561; Pena and Lobel, 1570; also Ruellius' Dioscorides, 1529; Camerarius' Epitome of Matthioli, 1586, says planted also in gardens, "Seritur quoque in hortis," and Dodonaeus, in his Pemptades, 1616, speaks of the wild plant being transferred to gardens, but distinctly says not for food use. According to Targioni-Tozzetti,<sup>7</sup> Alamanni in the sixteenth century speaks of it, but at the same time praises Alexanders for its sweet roots as an article of food. Bauhin's (1623) name, *Apium palustre* & *Apium officinarum* indicates medicinal

<sup>1</sup> De Candolle. Orig. des Pl. Cult., 71.

<sup>2</sup> Ross. Voy. to the South seas, II, 298. *Apium antarcticum*, Cook's Voy., ed. 1769, I, 28.

<sup>3</sup> Nutt. Jour. Acad. Phila., n. ser., I, 183.

<sup>4</sup> Forster. Pl. Esc., 67.

<sup>5</sup> Bodaeus and Scaliger's Theophrastus, ed. 1644, p. 804. Ruellius' Dioscorides, 1529, Pliny. Grandsagne. ed. Palladius, Gesners Script, rei rust.

<sup>6</sup> Hort. Trans., 1854, 144.

<sup>7</sup> l. c.

rather than food use, and J. Bauhin's name, *Apium vulgare ingratus*, does not promise much satisfaction in the eating. According to Bretschneider<sup>1</sup> celery, probably smallage, can be identified in the Chinese work of Kia Sz'mu, the fifth century A. D., and is described as a cultivated plant in the Nung Cheng Ts'nan shu, 1640. We have a mention, however, of a cultivated variety in France by Olivier de Serres in 1623,<sup>2</sup> and in England the seed was sold in 1726 for planting for the use of the plant in soups and broths,<sup>3</sup> and Miller<sup>4</sup> says, in 1722, that smallage is one of the herbs eaten in the spring to purify the blood. The cultivated smallage is even now grown in France under the name of *Celeri a couper*, differing but little from the wild form. The number of names that are given to smallage indicate antiquity, such as Arabic *Asalis*, Italian *apio*, German *Eppich*, Spanish *Ferexil dagoa*, French *ache*,<sup>5</sup> Egypt *Kerafs*,<sup>6</sup> English *smallage*, etc.

The prevalence of a name derived from one root indicates a recent dispersion of the cultivated variety. Vilmorin<sup>7</sup> gives the following synonyms: French *Celeri*, English *celery*, German *Selleriee*, Flanders *Selderij*, Denmark *Selleri*, Italy *Sedano*, Spain *apio*, Portugal *Aipo*, and M'Intosh<sup>8</sup> gives for the Spanish *Apio hortensis*. The first mention of the word celery that I have observed is in Walafridus Strabo's poem entitled "Hortulus," where he gives the medicinal uses of *Apium*, and in line 335 uses the word as follows:

"Passio tum celeri cedit devicta medelæ."

The disease then to celery yields, conquered by the remedy, as it may be liberally construed, yet the word *celeri* here may be translated quick-acting, and this suggests that our word *celery* was derived from the medicinal uses. Strabo wrote in the ninth century, having been born A. D. 806 or 807, and dying in France in 840. Targioni-Tozzetti<sup>9</sup> says it is certain that in the sixteenth century celery was already begun to be grown for the table in Tuscany. I cannot find any mention of *celery* in Fuchsius, 1542; Tragus, 1552; Matthioli Commentaries, 1558; Camerarius' Epitome, 1558;

<sup>1</sup> Botanicon Sinicum, 78.

<sup>2</sup> Ponce. La. Cult. Maraich. Also Heuze, Les Pl. Alim., I, p. 5.

<sup>3</sup> Townsend. Seedsman, 1726, 37.

<sup>4</sup> Bot. Offic., 1722.

<sup>5</sup> Pinaeus, 1561.

<sup>6</sup> Forsk.

<sup>7</sup> Les Pl. Pot., 72.

<sup>8</sup> Book of the Garden, II, 150.

<sup>9</sup> l. c.

Pinaeus, 1561; Pena and Lobel, 1570; Gerarde, 1597; Clusius rar. plant., 1601; Dodonaeus, pempt., 1616; or in Bauhin's Pinax, 1623. Parkinson's Paradisus, 1629, mentions Sellery as a rarity, and names it *Apium dulce*. Ray in his *Historia plantarum*, 1686, says the smallage transferred to culture becomes milder and less ungrateful, whence in Italy and France the leaves and stalks are esteemed as delicacies, eaten with oil and pepper. The Italians call this variety *Sceleri* or *Celeri*. The French also use the vegetable and the name. He adds that in English gardens the cultivated form often degenerates into smallage. Quintyne, who wrote<sup>1</sup> prior to 1697, the year in which the third edition of his *Complete Gardener* was published, says, in France "we know but one sort of it." *Celeri* is mentioned, however, as *Apium dulce*, *Celeri Italarum* in Hort. Reg. Par., 1665;<sup>2</sup> in 1778 Mawe and Abercrombie note two sorts of celery in England, one with the stalks hollow and the other with the stalks solid; but in 1726 Townsend<sup>3</sup> distinguished the celeries as smallage and sellery, and the latter he says should be planted "for Winter Sallads, because it is very hot." Tingburg<sup>4</sup> says celery is common among the richer classes in Sweden, and is preserved in cellars for winter use. In 1806 M'Mahon<sup>5</sup> mentions four sorts in his list of garden esculents for American use. It is curious that no mention of a plant that can suggest celery occurs in Bodaeus and Scaliger's edition of Theophrastus, published at Amsterdam in 1644.

The summary of our investigation hence is, that we find no clear evidence that smallage was grown by the ancients as a food plant, but that if planted at all it was for medicinal use. The first mention of cultivation as a food plant that I note is by Olivier de Serres, 1623, who calls it *ache*, while Parkinson speaks of *celery* in 1629, and Ray indicates the cultivation as commencing in Italy and extending to France and England. Targioni-Tozzetti states, however, as a certainty that celery was begun to be grown in Tuscany in the sixteenth century. The hollow celery is stated by Mawe<sup>6</sup> to have been the original kind, and is claimed by Cobbett<sup>7</sup> even as late as 1821 as being the best.

<sup>1</sup> Eng. ed., 1704.

<sup>2</sup> Tourn. Inst., 1719, 305.

<sup>3</sup> l. c.

<sup>4</sup> Hort. Culin., 1764, 25.

<sup>5</sup> American Gardeners' Kalendar.

<sup>6</sup> Mawe and Abercrombie. Gardener, 1778.

<sup>7</sup> American Gardener.

The first celeries grown seem to have differed but little from the wild plant, and the words celery and [cultivated] smallage were apparently nearly synonymous at one time, as we find cultivated *ache* spoken of in 1623 in France, and at later dates *Petit celeri* or *celeri a couper*, a variety with hollow stalks cultivated even at the present time for use of the foliage in soups and broths. Among the earlier varieties we find mention of hollow-stalked, stalks sometimes hollow, and solid-stalked forms; at the present time the hollow-stalked forms have become discarded. Vilmorin<sup>1</sup> describes thirteen sorts as distinct and worthy of culture in addition to the *celeri a couper*, but in all there is this to be noted, we have but one type.

A curious circumstance is that smallage took on the appearance of celery before its use was commonly recorded, if at all, as a salad plant, as is evidenced by the drawings herewith reproduced in reduced form. The first drawing is substantially the same as that in Fuchsius, 1542; Tragus, 1552; Pinaeus, 1561; Tabernaemontanus ic., 1590, or Gerarde, 1597, and Dodonaeus, 1616, and is taken from Matthiolus' Commentaries, 1558; this represents the common expression of the herbalists as to the appearance of *Apium palustre* at this time. The second picture is from Camerarius' Epitome of Matthiolus, 1586, and represents the form we call celery, but hollow stalked as at first noticed. The third picture is taken from Decaisne and Naudin's Manuel de l'amateur des jardins, and represents the unblanched plant of one of our most improved varieties. These pictures suggest the same ideas that I have previously shown to hold true for the dandelion, viz., that our improved strains originated from natural sources, and are not cultural in their beginnings.

Take the wild smallage, transfer to fertile soil and protect from crowding, and we should expect increase of size to the plant; earth up for the purpose of blanching and we should expect to gain increased weight to the leaf-stalks; a long-continued selection of the best plants for seed-growers would gradually succeed in forming the solid stalked; the growing of varieties from the earliest seed would tend toward earliness; the occasional growing through accident from unripe seed would tend towards obtaining a curled-leaf form with dwarf habit, etc. We may hence say that all our celeries in form are not changed from the orig-

<sup>1</sup> Les. Pl. Pot.

inal except in unessential points correlated with size and selec-

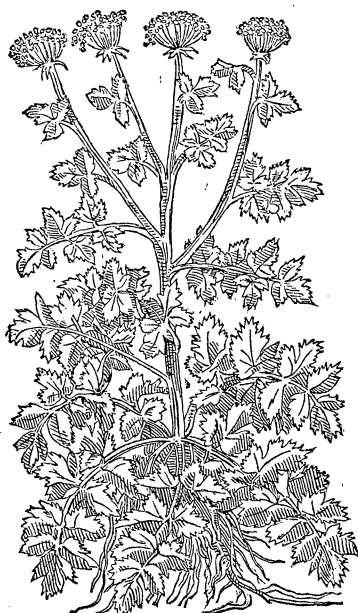


Fig. 1



Fig. 2

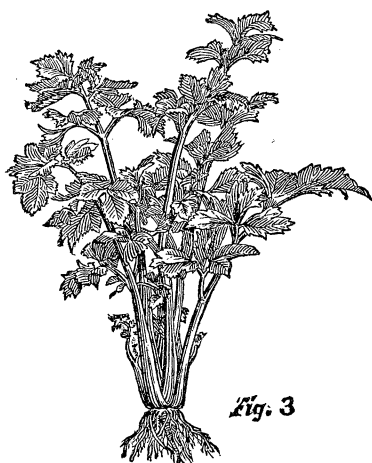


Fig. 3

FIG. 1.—*Apium palustre* (Matth. Comm., 1558, p. 362). FIG. 2.—*Apium palustre* (Cam. Epit., 1586, p. 527). FIG. 3.—*Celeri plein blanc* (Decaisne and Naudin).

tion. In quality celeries have tended to become milder, until



now some of our varieties, such as the Boston market, are of a very delicate taste, far different from the sort spoken favorably of by Townsend in 1726 as very hot and very slow growing.

It is probable that some original variation in quality discovered in the wild plant suggested cultivation, for among a people like the Italians, with whom high aromatic taste seems popular, the strong savor of the smallage would present little objection, if only grateful to them; or that its use was suggested by some popular idea of its value as a medicinal food, as seems probable. That there is great variety in wild plants in respect to flavor, we have every reason to believe. Smallage, described by most botanists as a suspicious if not dangerous plant for eating, yet in Fuegia was found palatable and healthful by the sailors of the exploring ships,<sup>1</sup> and in New Zealand described by Forster<sup>2</sup> as truly pleasant and salutary for scorbutic sailors. The use in Italy as a medicinal food, and the introducing to garden culture, with blanching, etc., would improve the flavor and increase its use, and improvement once initiated and recognized would necessarily continue, and stability of type-form would also tend to continue, as the seeding habits of the garden plant is not favorable to cross-fertilization with the wild or allied species, it being a biennial, and not usually seeding alongside of other species with which crosses might occasionally occur.

We have now in celery an improved, not changed, wild plant, which does not now tend to revert to the wild form, as it seemed to have done at the first, and a good illustration of the fixity of a garden form species. The present form will undoubtedly continue unchanged for a long period, unless cross-fertilization with another species-variety is brought to pass. It would be of garden interest to grow and cross the species-forms from different portions of the globe with our garden varieties, as analogical reasoning would suggest possibilities as yet unsuspected in practice.

<sup>1</sup> Ross, l. c. Cook, l. c.

<sup>2</sup> l. c.